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Patent claims

1. A surface acoustic wave arrangement having the following features:
- a piezoelectric substrate
- first and second surface acoustic wave structures (St1, St2) which are fitted on the substrate, are arranged one behind the other in the propagation direction of the surface acoustic waves, comprise metallic fingers and have a first and second finger period (p), respectively,
- the two surface acoustic wave structures have a different phase and/or different finger period (p),
- fingers at the ends of the two surface acoustic wave structures form a junction region from the first to the second surface acoustic wave structure,
- the local finger period (p) of the first surface acoustic wave structure initially decreases continuously in the junction region and finally rises continuously again until the finger period of the second surface acoustic wave structure is reached.

2. The surface acoustic wave arrangement as claimed in claim 1,
in which the junction region is formed by 5 to 8 fingers at the ends of the two surface acoustic wave structures.

3. The surface acoustic wave arrangement as claimed in claim 1 or 2,
in which at least one of the two surface acoustic wave structures is in the form of an interdigital transducer (A, E).

4. The surface acoustic wave arrangement as claimed in claim 3,
in which the second surface acoustic wave structure is in the form of a reflector (R).

5. The surface acoustic wave arrangement as claimed in claim 1 or 2, in which the two surface acoustic wave structures are in the form of reflectors (R).

6. The surface acoustic wave arrangement as claimed in one of claims 1-5,

in which the width of the fingers of the surface acoustic wave structures initially decreases and then increases again in the junction region.

7. The surface acoustic wave arrangement as claimed in one of claims 1-6,
in which the surface acoustic wave structures have a metallization ratio η of 0.7 to 0.8.

8. The surface acoustic wave arrangement as claimed in one of claims 1-7,
which is in the form of a dual mode surface acoustic wave filter (DMS filter), with interdigital transducers which are used as input and output transducers being arranged between two reflectors in one acoustic track, and the surface acoustic wave structures being selected from interdigital transducers and reflectors.

9. The surface acoustic wave arrangement as claimed in claim 8,
in which the reflectors are connected to ground.

10. The surface acoustic wave arrangement as claimed in claim 8 or 9,
in which the metallization height of the surface acoustic wave structures is in the region from 9 to 11% of the wavelength, which is associated with the surface acoustic wave structures, of the surface acoustic waves.

11. The arrangement as claimed in one of claims 1 to 10,
arranged on a 42° red YX-$LiTaO_3$ substrate or on a 36° red YX-$LiTaO_3$.

12. The arrangement as claimed in one of claims 1 to 11,
having three interdigital transducers (A, E1, E2) which are arranged one behind the other between two reflectors (R1, R2), with the central interdigital transducer, which is connected to a first connection (OUT), having a total of 27 to 35 electrode fingers

while, in contrast, the two outer interdigital transducers (E1, E2), which are connected to a second connection (IN), have a total of 20 to 24 electrode fingers.

13. The arrangement as claimed in claim 12, in which the distances between the central interdigital transducer (A) and the two outer interdigital transducers (E1, E2) are of different magnitude.

14. The arrangement as claimed in one of claims 1-13, which is in the form of a two-track arrangement, with the finger periods (p) of the reflectors (R) in the two tracks being of different magnitude.

15. The arrangement as claimed in one of claims 1-7, which is in the form of a reactance filter with single-port resonators, with a junction between the different finger periods (p) of an interdigital transducer and a reflector in at least one single-port resonator.

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